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GAP 3739

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Filing Date	September 2, 1997
First Named Inventor	Crowley
Group Art Unit	3739
Examiner Name	D. Shay
Attorney Docket No.	BSC-011

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TECHNOLOGY CENTER 3700

ENCLOSURES (check all that apply)

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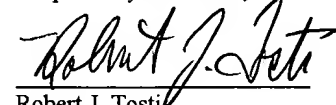
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PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICANT: Crowley

SERIAL NO.: 08/922,263

GROUP NO.: 3739

TECHNOLOGY CENTER 3700

FILING DATE: September 2, 1997

EXAMINER: Shay

TITLE: INTERVENTIONAL PHOTONIC ENERGY EMITTER
SYSTEM**RESPONSE**

This paper is submitted in response to the Office Action mailed from the Patent Office on February 3, 1999. Claims 1-17, 20-30, 32-44, and 47-50 are the pending elected claims in the application, with claims 1, 16, 20, 32, 41, and 47 being the only elected independent claims. Pending claims 18, 19, 31, 45, 46, and 51 are non-elected and have been withdrawn from consideration by the Examiner.

Rejection of Claims 1, 16, and 17 under 35 U.S.C. § 102

Claims 1, 16, and 17 are rejected under 35 U.S.C. § 102(b) over Vona et al., "A Test of The Hypothesis That Cavitation at the Focal Area of an Extracorporeal Shock Wave Lithotripter Produces Far Ultraviolet and Soft X-ray Emissions," *J. Acoust. Soc. Am.* 98 (2), August 1995 (hereinafter "Vona").

Claim 1 recites an interventional device comprising a sonoluminescent light module for placement inside a body.

As indicated on pages 2 and 20 of applicant's originally-filed specification, an interventional device relates to a device capable of being placed near an internal tissue region, such as a catheter, an endoscope, a guide wire, a needle, or an introducer. As indicated on page 12 of applicant's originally-filed specification, sonoluminescent light relates to light produced by high frequency sound waves.

Vona describes testing a hypothesis that “the violent collapse of microbubbles in water in the focal area of an extra-corporeal shock wave lithotripter (ESWL) can generate biologically damaging far uv and soft x-ray photons.” (See Abstract.) Figure 1 shows the ESWL system used by Vona.

Vona does not teach or suggest an interventional device comprising a sonoluminescent light module for placement inside a body. Vona describes an “extracorporeal piezoelectric lithotripter.” (See Figure 1.)

Claim 16 recites an interventional device comprising an x-ray generating light source for placement inside a body.

Vona does not teach or suggest an interventional device comprising an x-ray generating light source for placement inside a body. Vona describes an extracorporeal piezoelectric lithotripter.

Therefore, applicant submits that claims 1 and 16, and claims depending therefrom, are patentable over Vona.

Rejection of Claims 1, 2, 5-8, 10-13, and 15-17 under 35 U.S.C. § 102(b)

Claims 1, 2, 5-8, 10-13, and 15-17 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 4,893,614 to Takayama et al. (“Takayama”).

Claim 1 recites an interventional device comprising a sonoluminescent light module for placement inside a body.

Takayama describes an apparatus for disintegrating a calculus in the human body by an underwater shock wave produced outside the human body. The apparatus has a container forming a shock wave generation chamber, and a microexplosive and a fluid provided in the chamber. (col. 5, ln. 38 - col. 6, ln. 15.) In use, a bottom portion of the container is brought into contact with the human body, and the microexplosive is exploded to generate a shock wave. The shock waves disintegrate the stones in the human body. (col. 7, lns. 38 - 54.)

Takayama does not teach or suggest an interventional device. Takayama's underwater shock wave device is placed outside the body, and not inside the body. Takayama also does not teach or suggest an interventional device comprising a sonoluminescent light module. Takayama does not teach or suggest providing light of any kind.

Claim 16 recites an interventional device comprising an x-ray generating light source for placement inside a body.

Takayama does not teach or suggest an interventional device comprising an x-ray generating light source for placement inside a body. Takayama's apparatus for disintegrating a calculus generates shock waves, not x-rays.

Therefore, applicant submits that claims 1 and 16, and claims depending therefrom, are patentable over Takayama.

Rejection of Claims 3, 4, 9, 14, 20-30, 32-44, and 47-50 under 35 U.S.C. § 103(a)

Claims 3, 4, 9, 14, 20-30, 32-44, and 47-50 are rejected under 35 U.S.C. § 103(a) over PCT Publication No. WO 92/15253 to Chapelon et al. ("Chapelon") in view of Takayama and U.S. Patent No. 4,948,975 to Erwin et al. ("Erwin"). The Office Action also refers to configuring "the ultrasonic radiator of Chapelon et al. to emit sonoluminescence by employing the parameters of Vona et al." Applicant thus will address Chapelon, Takayama, Erwin, and Vona.

Claims 3, 4, 9, and 14 depend from independent claim 1.

Independent claim 1 recites an interventional device comprising a sonoluminescent light module for placement inside a body.

Chapelon describes an endo-rectal probe for destroying prostate tissue using ultrasonic sound waves, not light. The probe includes a piezoelectric transducer element for emitting ultrasonic sound waves, and the front face of the probe is open to prevent any interference with the emission of ultrasonic waves. Although a coupling fluid is injected inside the rectum to provide acoustic contact between the probe and the rectal wall during a procedure, the probe does

not include an acoustic conducting medium necessary to generate light. Therefore, Chapelon's probe does not have a sonoluminescent light module.

Erwin describes a quantitative luminescence imaging system. The system is capable of measuring low light levels from luminescent reactions in electromagnetic fields in the areas of chemiluminescence assays and thermal microdoscimetry. A sample is excited to produce a luminescent reaction when irradiated in an RF field. The low light level image from the sample is imaged using a camera. (col. 4, lns. 17-29.) Erwin does not teach or suggest an interventional device. Erwin also does not teach or suggest a sonoluminescent light module.

Takayama does not teach or suggest an interventional device or sonoluminescent light module.

Therefore, Chapelon, Takayama, and Erwin, taken individually or in combination, do not teach or suggest an interventional device comprising a sonoluminescent light module for placement inside a body.

Vona, as mentioned above, describes an extracorporeal piezoelectric lithotripter. Vona indicates that near uv and soft x-ray photons generated by the lithotripter produce harmful effects. (pg. 706.) Vona does not teach or suggest an interventional device comprising a sonoluminescent light module for placement inside a body, and thus Vona adds nothing to Chapelon, Takayama, and/or Erwin.

Claim 20 recites an interventional device comprising an arc lamp for placement inside a body.

Claim 32 recites an interventional device comprising a fluorescent light source for placement inside a body.

Claim 41 recites an interventional device comprising a spark gap module for placement inside a body.

Claim 47 recites an interventional device comprising an incandescent lamp for placement inside a body and for generating short duration high intensity light waves.

None of the references teaches or suggests an interventional device comprising an arc lamp, a fluorescent light source, a spark gap module, or an incandescent lamp. Chapelon and Vona describe piezoelectric devices for generating shock waves. Takayama describes a microexplosive for generating shock waves. Erwin describes an imaging system having an excitation unit for generating RF waves.

Therefore, applicant submits that claims 1, 20, 32, 41, and 47, and claims depending therefrom, are patentable over the references.

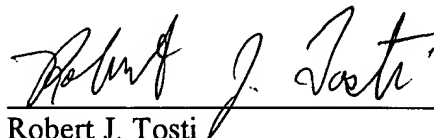
Information Disclosure Statement (IDS)

The Office Action indicates that a copy of PTO-1449 forms initialed by the Examiner are attached to the Office Action, but no such copies were attached and thus applicant requests that other copies be sent. Also, applicant requests initialed copies of PTO-1449 forms for IDSs and Supplemental IDSs sent by applicant on September 2, 1997, October 31, 1997, June 3, 1998, February 26, 1999, and April 18, 1999.

Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration, withdrawal of the rejections, and allowance of all elected pending claims (i.e., 1-17, 20-30, 32-44, and 47-50) in due course.

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